



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

THE SCHICK TEST

BY CHARLOTTE JOHNSON, R.N.

Annie W. Durand Hospital, Chicago, Ill.

Investigations have led to some very interesting observations relative to immunity in diphtheria. It has been found that many individuals have enough antitoxin in the blood to protect them against the disease even when exposed constantly; again, others are partially protected, while still others possess little or no antitoxin in the blood and become easy prey to the ravages of the disease. An individual may be susceptible at one time and immune later on. Persons suffering from catarrhal conditions are often found to be diphtheria carriers. These rarely develop active diphtheria and often show a high degree of immunity. It seems probable that these may have had an unrecognized infection in a very mild form and as a result they have gradually built up in the blood a protective immunity against the disease.

Very few nursing babies under six months contract diphtheria. In children between one and four years, 65 to 69 per cent are susceptible; between four and six years, the percentage falls to 50 per cent; from six to eight years, it drops to 35 per cent; and from eight to fifteen we find only 26 per cent of children susceptible.

These observations are based upon what is known as the Schick test by means of which individual susceptibility and immunity to diphtheria may be recognized. This very delicate skin test, which has been worked out by an Austrian physician named Schick, is simple, practical and effective. Dr. George H. Weaver and his associates, who are doing this work in the Durand Hospital, have carried out the following technique: A very small amount of diphtheria toxin ($\frac{1}{80}$ of a minimal lethal dose for a guinea pig of 250 grams weight) in a few minims of physiological salt solution is injected into the superficial layers of the skin of one arm. For a control, the same amount of toxin with more than enough antitoxin required to neutralize it is injected with saline solution into the other arm. The same amount of fluid is injected into each arm in order that the trauma may be identical. The injection is made with a very fine, sharp, short-pointed needle and a successful injection results in the production of a white blister-like elevation. If, within twenty-four to forty-eight hours, there is no redness the reaction is negative. There may be a slight redness which, if it is uniform in both arms and disappears quickly, also means a negative reaction. If the arm into which the toxin has been injected becomes a slightly brighter red than the other there is a slight positive

reaction. If there is considerable redness and induration in the arm injected with toxin while the other quickly clears up, the reaction is frankly positive and the patient has little or no immunity against diphtheria. In these cases the redness and swelling persists about a week or ten days, following by desquamation and a brownish pigmentation.

To be able thus to determine susceptibility to diphtheria is of great advantage in institutions caring for children. In this way non-susceptible children do not need to be sensitized by the preventive injection of serum even though known to be exposed to contagion. In case of an outbreak of diphtheria in the home or school or hospital ward, each child exposed may by this simple test be treated according to his need and not immunized unless this is necessary.

The Schick test is being made upon all cases entering the Durand Hospital with a diagnosis of diphtheria. In doubtful cases it helps in differential diagnosis. In diphtheria carriers it is of much diagnostic value. These patients may harbor the Klebs-Loeffler bacilli and still not be suffering from an active diphtheria. The Schick reaction in these cases is usually negative and can be relied upon in the diagnosis. When the patient proves to be only a carrier, he obviously does not need antitoxin. In an acute case of diphtheria the test gives a positive reaction if made before antitoxin is administered; if made simultaneously with the administration of a sufficient amount of antitoxin to neutralize the diphtheria toxin, the reaction is modified, or it may even be completely negative. Again, in severe cases of diphtheria where there may be a question of sufficient dosage of antitoxin, the test is most valuable. As soon as a negative reaction is obtained the patient evidently needs no more antitoxin. The amount of antitoxin in the blood of persons having a negative reaction varies considerably. About $\frac{1}{10}$ of a unit of antitoxin to a cubic centimeter of blood is sufficient for ordinary protection. Some individuals are found to have as high as 10 units in a cubic centimeter of blood.

During the last seven months all interns and nurses entering the service in our hospital have been given this test. It has been found that about half of these individuals have had a sufficient amount of antitoxin in the body to protect them against diphtheria. Others, who are not fully protected, have the blood tested upon guinea pigs in order to determine accurately the amount of normal antitoxin in the blood. Those who show a very positive Schick reaction are given a small immunizing dose of antitoxin. Previous to the adoption of this immunity test we had some diphtheria among young nurses caring for diphtheria patients. Since making use of this skin test we have not had a single

case. It has caused no inconvenience whatever and is certainly a great boon to the nurses.

As an index to susceptibility, this test is of the greatest possible value in schools or institutions where children are kept together in large numbers and where occasional outbreaks of diphtheria occur. As a help in differential diagnosis between active diphtheria and the diphtheria carrier it provides the only reliable aid known. As a means of determining proper dosage of antitoxin it establishes a rational basis for accurate, scientific work.

AMERICAN RED CROSS WORK IN SERBIA

By AGNES GARDNER, R.N.

Washington, D. C.

Our first unit of twelve nurses and three doctors sailed for Serbia on September 9, 1914. Sixteen days later we sighted our first land, Gibraltar, with Spain on our left and Africa on our right. We visited Sicily and Greece, staying at Athens for three days, finally reaching Salonique on the border between Greece and Serbia. From there we took the train to Nish where we were met by Dr. Soubotitch, vice president of the Red Cross Society of Serbia; the American consul, Mr. Haskell; Mr. Grouitch, the Serbian permanent under secretary of foreign affairs, and Madame Grouitch, who is an American. We were entertained at lunch by the Serbian Red Cross, afterwards visiting their Red Cross headquarters and hospital.

During this time the question was discussed as to where we should be located; the military authorities considered Belgrade dangerous, as the town was at this time under bombardment and had been for six weeks. Madame Grouitch accompanied by Dr. Ryan, the director of our unit, and Miss Gladwin, our supervisor, to Valjevo to interview the Crown Prince on this subject and ask permission to proceed to Belgrade and take charge of the military hospital there. The Crown Prince asked the question "Were we not afraid to go?" and the answer was quickly given, "We would not have left America, had we been afraid." Needless to say the request was granted and we arrived in Belgrade, October 16.

At Belgrade the railway station had been shelled, so we were obliged to drive from a station below, Topsheda, a distance of five miles, through deep mud. It had rained for nine days! As we approached the city, the deep sound of the cannon from both Serbian and Austrian sides fell on our ears; this was actual war! We saw many pitiful sights